

Response to Office Action Mailed October 18, 2005

A. Claims in the Case

Claims 50, 76, and 98-118 are rejected. Claims 50, 76, 102, 103, 104, 105, 108, 111, 113, 114, and 115 have been amended. Claims 106, 107, 112, 116, and 117 have been canceled. Claims 119 and 120 are new. Claims 50, 76, and 98-105, 108-111, 113-115, and 118-120 are pending.

B. The Claims Are Not Obvious Over Walt In View Of Felder, Chang, Or Ravkin and Further in view of Pope and Dakss Pursuant To 35 U.S.C. § 103(a)

The Examiner rejected claims 50, 76, and 98-118 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,327,410 to Walt et al. (hereinafter “Walt”) in view of U.S. Patent No. 6,232,066 to Felder et al. (hereinafter “Felder”), U.S. Patent No. 6,350,620 to Chang et al. (hereinafter “Chang”), or U.S. Patent Application Publication No. 2003/0008323 to Ravkin et al. (hereinafter “Ravkin”) taken further in view of U.S. Patent No. 5,496,997 to Pope (“Pope”) and U.S. Patent No. 4,269,648 to Dakss et al. (“Dakss”). Applicant respectfully disagrees with that the claims are unpatentable over the cited art.

To reject a claim as obvious, the Examiner has the burden of establishing a *prima facie* case of obviousness. *In re Warner et al.*, 379 F.2d 1011, 154 U.S.P.Q. 173, 177-178 (C.C.P.A. 1967). To establish a *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974); MPEP 2143.03.

Amended claim 50 includes, but is not limited to, the feature of:

forming a plurality of sensing elements having a predetermined shape, wherein forming the sensing element comprises coupling a receptor to a polymeric body,

and wherein the receptor is at least partially encapsulated within the polymeric body,

Applicant submits that the cited art does not appear to teach or suggest at least this feature, in combination with the other feature of claim 50.

Claim 50 has been amended by incorporating at least some of the features of formerly pending dependent claim 107 into claim 50. With respect to the feature of claim 50, the Office Action alleges that Walt at Col. 7, line 55 through Col. 12, line 62, appears to teach this feature. Applicant has reviewed the cited portion of Walt and submits that Walt does not appear to teach or suggest at least the feature of a “receptor is at least partially encapsulated within the polymeric body,” in combination with the other features of independent claim 50.

For example, Walt states:

As will be appreciated by those in the art, the bioactive agents may either be synthesized directly on the beads, or they may be made and then attached after synthesis. In a preferred embodiment, linkers are used to attach the bioactive agents to the beads, to allow both good attachment, sufficient flexibility to allow good interaction with the target molecule, and to avoid undesirable binding reactions.

(Col. 11, lines 49-56)

Walt appears to teach that receptors are attached directly to a surface of a bead or a receptor may be synthesized using the bead as a support for the synthesis. Walt does not appear to teach or suggest that the receptor is “at least partially encapsulated within the polymeric body.” Applicant submits that claim 50 is patentable over the cited art.

Amended claim 76 includes a combination of features including, but not limited to the features of “wherein each of the sensing elements comprises a receptor coupled to a polymeric body, and wherein the receptor is at least partially encapsulated within the polymeric body.” Applicant submits that, for at least the same reasons cited above, claim 76 is patentable over the cited art.

Claim 98 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 98 includes the feature of “wherein forming a sensing element comprises polymerizing a monomer composition” in combination with the features of claim 50. Applicant submits that the cited art does not appear to teach all the features of claim 98 in combination with the features of claim 50. Applicant respectfully requests removal of the rejection to the claim.

Claim 99 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 99 includes the feature of “wherein placing the sensing element in a liquid composition comprises placing the sensing elements at the surface of the liquid composition” in combination with the features of claim 50. Applicant submits that the cited art does not appear to teach all the features of claim 99 in combination with the features of claim 50. Applicant respectfully requests removal of the rejection to the claim.

Claims 100 and 109 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claims 100 and 109 include the feature of “wherein the sensing element comprises a polymer” in combination with the features of claims 50 and 76. Applicant submits that the cited art does not appear to teach all the features of claims 100 and 109 in combination with the features of the respective independent claims. Applicant respectfully requests removal of the rejections to the claims.

Claims 101 and 110 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claims 101 and 110 include the feature of “wherein the sensing element comprises a polyethylene glycol hydrogel” in combination with the features of claims 50 and 76. Applicant submits that the cited art does not appear to teach all the features of claims 101 and 110 in combination with the features of the respective independent claims. Applicant respectfully requests removal of the rejection to the claim.

Claim 102 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 102 includes the feature of “wherein forming the sensing element comprises coupling a

receptor to a polymeric body, and wherein the receptor is configured to produce a signal when the sensing element interacts with the analyte during use” in combination with the features of claim 50. Applicant submits that the cited art does not appear to teach all the features of claim 102 in combination with the features of claim 50. Applicant respectfully requests removal of the rejection to the claim.

Claim 103 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 103 includes the feature of “wherein forming the sensing element comprises coupling a receptor to a polymeric body, and wherein the polymeric body comprises a non-spherical shape” in combination with the features of claim 50. Applicant submits that the cited art does not appear to teach all the features of claim 103 in combination with the features of claim 50. Applicant respectfully requests removal of the rejection to the claim.

Claim 104 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 104 includes the feature of “wherein forming the sensing element comprises coupling a receptor to a polymeric body, and wherein the polymeric body comprises a polyethylene glycol polymer” in combination with the features of claim 50. Applicant submits that the cited art does not appear to teach all the features of claim 104 in combination with the features of claim 50. Applicant respectfully requests removal of the rejection to the claim.

Claim 105 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 105 includes the feature of “wherein forming the sensing element comprises coupling a receptor to a polymeric body, and wherein the polymeric body comprises a polyethylene glycol diacrylate” in combination with the features of claim 50. Applicant submits that the cited art does not appear to teach all the features of claim 105 in combination with the features of claim 50. Applicant respectfully requests removal of the rejection to the claim.

Claim 108 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 108 includes the feature of “wherein forming the sensing element comprises coupling a receptor to a polymeric body, and wherein the receptor comprises a nucleic acid” in combination

with the features of claim 50. Applicant submits that the cited art does not appear to teach all the features of claim 108 in combination with the features of claim 50. Applicant respectfully requests removal of the rejection to the claim.

Claim 111 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 111 includes the feature of “wherein the sensing element comprises a receptor, and wherein the receptor is configured to produce a signal when the sensing element interacts with the analyte during use” in combination with the features of claim 76. Applicant submits that the cited art does not appear to teach all the features of claim 111 in combination with the features of claim 76. Applicant respectfully requests removal of the rejection to the claim.

Claim 113 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 113 includes the feature of “wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the polymeric body comprises a non-spherical shape” in combination with the features of claim 76. Applicant submits that the cited art does not appear to teach all the features of claim 113 in combination with the features of claim 76. Applicant respectfully requests removal of the rejection to the claim.

Claim 114 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 114 includes the feature of “wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the polymeric body comprises a polyethylene glycol polymer” in combination with the features of claim 76. Applicant submits that the cited art does not appear to teach all the features of claim 114 in combination with the features of claim 76. Applicant respectfully requests removal of the rejection to the claim.

Claim 115 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 115 includes the feature of “wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the polymeric body comprises a polyethylene glycol diacrylate” in combination with the features of claim 76. Applicant submits that the cited art does not appear to

teach all the features of claim 115 in combination with the features of claim 76. Applicant respectfully requests removal of the rejection to the claim.

Claim 118 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited art. Claim 118 includes the feature of “wherein the sensing element comprises a receptor coupled to a polymeric body, and wherein the receptor comprises a nucleic acid” in combination with the features of claim 76. Applicant submits that the cited art does not appear to teach all the features of claim 118 in combination with the features of claim 76. Applicant respectfully requests removal of the rejection to the claim.

New claims 119 and 120 include the feature of “forming a mixture of a receptor in a monomer composition, and curing the mixture into a predetermined shape” in combination with the features of claims 50 and 76. Support for claims 50 and 76 may be found, for example, in Applicant’s specification on page 31, lines 1 –11 which state:

Sensing Element Production:

- 3.5 ml of PEG matrix was added to 0.35 ml of glucose oxidase
 - Sensors were used at a concentration of 100 microliter of the enzyme solution per ml of PEG.
 - PEG/enzyme matrix was pipette into the Teflon pan with 1 mls of depth
 - The template curing method was used to cure (1 sec) shaped muffins directly to a microscope slide that had a transparency mask attached to the other side
- (Specification, page 31, lines 1-11)

Further support may be found on page 32, lines 13-20)

A demonstration of chemical detection was accomplished by making pH sensitive, concentric sensing elements. Three pH sensitive dyes were encapsulated into stars (methyl purple), triangles (congo red) and squares (phenol red). The inner sensing elements were made from a composition including 48-wt% pH dye in water, 50-wt% PEG-575-diacrylate and 2-wt% Darocur 1173. The composition for the immobilizing matrix consisted of 73-wt% PEG-575-diacrylate, 25-wt% deionized water, and 2-wt% Darocur 1173.
(Specification, lines 13-20)

Applicant submits that the cited art does not appear to teach all the features of claims 119 and 120, in combination with the respective independent claims.

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D. Summary

Applicant submits that all claims are in condition for allowance. Favorable reconsideration is respectfully requested.

Applicant hereby requests a three-month extension of time. A Fee Authorization for the fees for a three-month extension of time is enclosed. If any fees are inadvertently omitted or if any additional fees are required or have been overpaid, please appropriately charge or credit those fees to Meyertons, Hood, Kivlin, Kowert & Goetzl, P.C. Deposit Account Number 50-1505/5119-07301/EBM

Respectfully submitted,

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